

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Son Nguyen Kim *et al.*

Application No.: 10/541,157

Confirmation No.: 6306

Filed: June 30, 2005

Art Unit: 1796

For: AMPHOLYTIC COPOLYMER AND USE  
THEREOF

Examiner: H. L. Pezzuto

**APPEAL BRIEF**

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This brief is filed more than two months after the filing of the Notice of Appeal (filed on October 16, 2007) but is timely under 37 C.F.R. § 1.136(a). The fees required under § 1.17(a) and § 41.20(b)(2) are submitted herewith as shown in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

- I. Real Party In Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds of Rejection to be Reviewed on Appeal
- VII. Argument
- VIII. Claims
- Appendix A Claims
- Appendix B Evidence
- Appendix C Related Proceedings

**I. REAL PARTY IN INTEREST**

The real party in interest for this appeal is:

BASF SE

**II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

**III. STATUS OF CLAIMS**

**A. Total Number of Claims in Application**

There are 32 claims pending in application.

**B. Current Status of Claims**

1. Claims 16-26 and 32-36 are canceled.
2. Claims 1-15 and 27-29 are withdrawn from consideration but not canceled.
3. Claims 1-15, 27-31, and 36-47 are pending.
4. No claims are allowed.
5. Claims 30-31, and 36-47 are rejected.

**C. Claims On Appeal**

The claims on appeal are claims 30-31 and 36-47.

**IV. STATUS OF AMENDMENTS**

Applicant did not amend the claims after Final Rejection.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed subject matter in independent claim 30 is directed to an ampholytic copolymer obtainable by free-radical copolymerization of

- a) at least one compound with a free-radically polymerizable,  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one anionogenic and/or anionic group per molecule (for example, see page 3, lines 40-43 of the specification),
- b) at least one compound with a free-radically polymerizable,  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one cationogenic and/or cationic group per molecule (see, for example, page 4, lines 1-3 of the specification),
- c) at least one  $\alpha,\beta$ -ethylenically unsaturated amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof (see, for example, page 10, lines 37-39 of the specification),

where the quantitative molar ratio of compounds a) to compounds b) is from 0.5:1 to less than 2:1 (see, for example, page 6, line 15 of the specification).

As further recited in claim 31, the claimed subject matter is directed to a polyelectrolyte complex comprising at least one ampholytic copolymer, as defined in claim 30, and at least one further polyelectrolyte different therefrom (see, for example, page 29, lines 28-30 of the specification).

As further recited in claim 36, the ampholytic copolymer has a quantitative molar ratio of compounds a) to compounds b) in a range from 0.7:1 to 1.8:1 (see, for example, page 6, line 15 of the specification) .

As further recited in claim 37, the composition has at least some of the compounds a) and b) used in the form of a monomer composition, where the molar ratio of anionogenic groups of component a) to cationogenic groups of component b) is about 1:1 (see, for example, original claim 3).

As further recited in claim 38, the composition additionally comprises, in copolymerized form, at least one further monomer d) selected from the group consisting of esters of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with C<sub>1</sub>-C<sub>30</sub>-alkanols and C<sub>1</sub>-C<sub>30</sub>-alkanediols, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with C<sub>2</sub>-C<sub>30</sub>-aminoalcohols which have a primary or secondary amino group, N-alkyl- and N,N-dialkylamides of  $\alpha,\beta$ -ethylenically unsaturated monocarboxylic acids which, in addition to the carbonyl carbon atom of the amide group, have more than 8 further carbon atoms, esters of vinyl alcohol and allyl alcohol with C<sub>1</sub>-C<sub>30</sub>-monocarboxylic acids, vinyl ethers, vinyl aromatics, vinyl halides, vinylidene halides, C<sub>1</sub>-C<sub>8</sub>-monoolefins, nonaromatic hydrocarbons with at least two conjugated double bonds, siloxane macromers and mixtures thereof (*see, for example, page 11, lines 2-11 of the specification*).

As further recited in claim 39, the composition additionally comprises, as component e), at least one polyether acrylate in copolymerized form (*see, for example, page 12, line 9 of the specification*).

As further recited in claim 40, the composition is obtainable by free-radical copolymerization in the presence of a component g) which is selected from the group consisting of

g1) polyether-containing compounds,

g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol,

g3) cellulose, starch and derivatives thereof,

and mixtures thereof (*see, for example, page 15, lines 7-12 of the specification*).

As further recited in claim 41, the composition has component a) selected from the group consisting of monoethylenically unsaturated carboxylic acids, sulfonic acids, phosphonic acids and mixtures thereof (*see, for example, page 7, lines 18-19*).

As further recited in claim 42, the composition has component a) selected from the group consisting of acrylic acid, methacrylic acid, ethacrylic acid,  $\alpha$ -chloroacrylic acid, crotonic acid, maleic acid, maleic anhydride, fumaric acid, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, vinylsulfonic acid, allylsulfonic acid, sulfoethyl acrylate, sulfoethyl methacrylate, sulfopropyl acrylate, sulfopropyl methacrylate, 2-hydroxy-3-acryloxypropylsulfonic acid, 2-hydroxy-3-methacryloxypropylsulfonic acid, styrenesulfonic acid, 2-acrylamido-2-methylpropanesulfonic acid, vinyl-phosphonic acid and allylphosphonic acid and mixtures thereof (*see*, for example original claim 8).

As further recited in claim 43, the composition has component a) selected from the group consisting of acrylic acid, methacrylic acid and mixtures which comprise acrylic acid and/or methacrylic acid (*see*, for example, page 8, lines 1-2, and original claim 9).

As further recited in claim 44 the composition has component a) selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid and mixtures thereof (*see*, for example, page 8, lines 9-11).

As further recited in claim 45, the composition has component b) selected from the group consisting of esters of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with amino alcohols which may be mono- or dialkylated on the amine nitrogen, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with diamines which have at least one primary or secondary amino group, N,N-diallylamine, N,N-diallyl-N-alkylamines and derivates thereof, vinyl- and allyl-substituted nitrogen heterocycles, vinyl- and allyl-substituted heteroaromatic compounds and mixtures thereof (*see*, for example, page 8, lines 29-32 and original claim 11).

As further recited in claim 46 the composition has component b) selected from the group consisting of N,N-dimethylaminoethyl (meth)acrylate, N,N-dimethylaminopropyl (meth)-acrylate, vinylimidazole, N-[3-(dimethylamino)propyl](meth)acrylamide, N-(tert-butyl)aminoethyl(meth)acrylate, N,N-diallylamine, N,N-diallyl-N-methylamine and mixtures thereof (*see*, for example, page 9, lines 23-24 of the specification and original claim 12)

As further recited in claim 47, the composition additionally comprises, in copolymerized form, at least one free-radically polymerizable crosslinking compound f) with at least two  $\alpha,\beta$ -ethylenically unsaturated double bonds per molecule (*see*, for example, page 13, lines 35-37 of the specification).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Is the rejection of claims 30-31 and 36-47 under 35 U.S.C. § 103(a) based on Jenkins, Blankenburg *et al.*, Morschhäuser *et al.*, and/or Galleguillos *et al.* proper?

## VII. ARGUMENT

### The rejection of Claims 30-31 and 36-47 under 35 U.S.C. § 103(a) Based on Jenkins, Blankenburg *et al.*, Morschhäuser *et al.*, or Galleguillos *et al.* is Not Proper

Briefly, the claimed subject matter is generally directed to an ampholytic copolymer composition. Applicants discovered that the claimed combination of components in the claimed ratios impart a myriad of beneficial properties to cosmetic and pharmaceutical compositions. For example, the claimed polymers form tack-free smooth films, have good setting action, are suitable in the preparation of products in the form of gels, and are compatible with a large number of different polyelectrolytes. *See, e.g.*, the specification on page 3, lines 23-35. The many examples presented in the specification demonstrate the claimed polymers' use, for instance, in the manufacture of conditioner shampoos (examples 80-130), hair gels with an anionic thickeners (examples 181-230), hair gels with further setting polymers and thickeners (examples 231-280), anionic self-thickening hair gels (examples 281-330), and skin cosmetics (examples 331-380).

Claims 30-31 and 36-47 have been rejected under 35 U.S.C. § 103(a) as being obvious over any or all of the following four references:

- (1) Jenkins, U.S. Patent No. 5,639,841 ("Jenkins");
- (2) Galleguillos *et al.*, U.S. Patent No. 6,361,768 ("Galleguillos *et al.*.");

- (3) Blankenburg *et al.*, U.S. Patent No. 6,403,074 (“Blankenburg *et al.*.”); and/or
- (4) Morschhäuser *et al.*, U.S. Patent No. 6,645,476 (“Morschhäuser *et al.*.”).

As an initial matter, applicants note that during prosecution of this application it has not been clear whether only claims 30-31 are rejected as being obvious over the above-identified references or whether all claims being examined, *i.e.*, claims 30-31 *and* claims 36-47, are rejected as being obvious over the above-identified references. Applicants added claims 36-47 in their July 22, 2008 response to the first Office Action. In the final Office Action mailed on November 5, 2008, the examiner wrote that the obviousness rejection applied to claims 30-31 and did not address or otherwise speak to claims 36-47 or consider any of the elements of these claims. However, the PTOL-326 form accompanying the final Office Action indicated that claims 30-31 *and* 36-47 were rejected. In response to the final Office Action, applicants again asked for clarification regarding this ambiguity and noted that none of the elements of claims 36-47 had been addressed in the final Office Action. The May 18, 2009 Advisory Action following applicants’ response, however, did not address applicants’ query. On May 4, 2009, applicants filed a Pre-Appeal Brief Request for Review wherein applicants again asked for clarification regarding claims 36-47. The Notice of Panel Decision from Pre-Appeal Review did not speak to applicants’ query or address the elements of claims 36-47 but noted on the PTOL-90A form that claims 30-31 and 36-37 were rejected. Shortly after receiving the Notice of Panel Decision from Pre-Appeal Review, applicants received a Miscellaneous Communication mailed on May 18, 2009 from the examiner stating that “for clarification purposes, claims 30-31, and 36-47 are currently rejected for the reasons of record.” However, to date, there are no reasons of record addressing the patentability of claims 36-47.

The obviousness rejection of claims 30-31 *and* claims 36-47 (to the extent an obviousness rejection has been applied against claims 36-47) is improper over each reference individually and in combination because:

1. The rejection does not account for every element of the claims;
2. The art teaches away from proceeding as applicants have done; and

3. Deriving the claimed invention from the cited references requires picking and choosing elements from the prior art and simply lumping them together to re-create the claimed invention.

First, the references, even in combination, do not account for all the elements of the claims. To establish *prima facie* obviousness, all the claim limitations must be taken into account. The Board of Patent Appeals and Interferences recently stated:

When determining whether a claim is obvious, an examiner must make a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art.” *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)). Moreover, as the Supreme Court recently stated, “*there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.*” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

*In re Wada and Murphy*, Appeal 2007-3733 (Bd. Pat. App. & Inter. 2008).

The following discussion addresses each of the four references and highlights the elements missing from the cited references.

#### Jenkins

Jenkins does not require that (1) an anionic component and cationic component be used together, (2) it does not specify a particular ratio of anionic component to cationic component, and (3) does not require the inclusion of a specific amide-group-containing compound.

Claims 30-31 are directed to an ampholytic copolymer and a polyelectrolyte complex obtainable by free-radical copolymerization of a) an anionic component and b) a cationic component. To account for this recitation, the Office Action refers to component (A) of Jenkins where it describes polymers comprising the reaction product of “about 1-99.8 weight percent of one or more nonionic, *cationic, anionic* or amphoteric monomers”(emphasis added) (*see, e.g.*, the abstract of Jenkins). Jenkins, however, does not require that both an anionic and cationic

monomer be employed together—their combination is optional. In fact, Jenkins does not appear to describe any examples where both an anionic and cationic monomers are used together.

Next, claims 30-31 recite a molar ratio of a) an anionic component to b) a cationic component from 0.5:1 to less than 2:1, claim 36 recites a molar ratio from 0.7:1 to 1.8:1, and claim 37 recites a molar ratio of about 1:1. Jenkins *et al.*, however, does not specify any ratio of anionic component to cationic component (or even contain a single example where an anionic component and a cationic component are used together).

Finally, claims 30-31 include, as component c), an amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof. To account for this recitation, the Office Action refers to component (B) of Jenkins, which describes “about 0-98.8 weight percent of one or more mono-ethylenically unsaturated monomers.” Since the bottom of this range is zero, component (B) is also optional. Jenkins provides a list of optional mono-ethylenically unsaturated monomers in column 3, lines 34-67 (reproduced below).

The polymers of this invention can also contain a significant proportion of one or more monoethylenically unsaturated monomers (i.e., component (B)). The preferred monomers provide water insoluble polymers when homopolymerized and are illustrated by acrylate and methacrylate esters, such as ethyl acrylate, butyl acrylate or the corresponding methacrylate. Other monomers which can be used are styrene, alkyl styrenes, vinyl toluene, vinyl acetate, vinyl alcohol, acrylonitrile, vinylidene chloride, vinyl ketones and the like. Nonreactive monomers are preferred, those being monomers in which the single ethylenic group is the only group reactive under the conditions of polymerization. However, monomers which include groups reactive under baking conditions or with divalent metal ions such as zinc oxide may be used in some situations, like hydroxyethyl acrylate.

Other illustrative monoethylenically unsaturated monomers useful in this invention include, for example, propyl methacrylate, isopropyl methacrylate, butyl methacrylate, n-amyl methacrylate, sec-amyl methacrylate, hexyl methacrylate, lauryl methacrylate, stearyl methacrylate, ethyl hexyl methacrylate, crotyl methacrylate, cinnamyl

methacrylate, oleyl methacrylate, ricinoleyl methacrylate, hydroxy ethyl methacrylate, hydroxy propyl methacrylate, vinyl propionate, vinyl butyrate, vinyl tert-butyrate, vinyl caprate, vinyl stearate, vinyl laurate, vinyl oleate, vinyl methyl ether, vinyl ethyl ether, vinyl n-propyl ether, vinyl iso-propyl ether, vinyl n-butyl ether, vinyl iso-butyl ether, vinyl iso-octyl ether, vinyl phenyl ether, a-chlorovinyl phenyl ether, vinyl/-naphthyl ether, methacryonitrile, *acrylamide*, *methacrylamide*, N-alkyl acrylamides, N-aryl acrylamides, *N-vinyl pyrrolidone*, N-vinyl-morpholinones, N-vinyl-oxazolidone, N-vinyl-imidazole and the like including mixtures thereof. (emphasis added)

From this relatively large list of mono-ethylenically unsaturated monomers, the Office Action identifies three that are encompassed by the instant claims (*i.e.*, acrylamide, methacrylamide, and N-vinyl pyrrolidone). However, none of these three mono-ethylenically unsaturated monomers are used in any examples of Jenkins—the claimed mono-ethylenically unsaturated monomers are non-preferred.

Furthermore, Jenkins does not account for the elements of claims 36-47. As mentioned above, claims 36-37 recite specific ratios of component a) to component b), which have not been addressed by the rejection and are not described or suggested in Jenkins.

Claim 38 further includes at least one monomer d) in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Jenkins. Although individual monomers corresponding to monomer d) of the instant claims can be found in the generic disclosure of Jenkins, Jenkins does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 39 further includes a component e) at least one polyether acrylate in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Jenkins. Jenkins does not appear to describe or exemplify any polyether acrylates. Furthermore, Jenkins does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 40 includes a component g) selected from g1) polyether-containing compounds, g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol, and g3) cellulose, starch and derivatives thereof. None of these recitations have been addressed by the rejection and are not obvious in view of Jenkins. Furthermore, Jenkins does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claims 41-44 are directed to specific anionic components a) and claims 45-46 are directed to specific cationic components b). As explained above with respect to claim 30-31, Jenkins generically describes many anionic and cationic components but does not require or exemplify their use together and does not specify or exemplify a ratio of anionic component a) to cationic component b).

Claim 47 further provides for a crosslinking compound f) with at least two alpha, beta-ethylenically unsaturated double bonds per molecule. Although individual compounds corresponding to crosslinking compound f) of the instant claims can be found in the generic disclosure of Jenkins, Jenkins does not describe its required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

#### Galleguillos et al.

Galleguillos *et al.* describes composition including both anionic and cationic components but it teaches away from the ratios of the instant claims.

Claim 30 refers to a molar ratio of a) anionic component to b) cationic component from 0.5:1 to less than 2:1. Claim 36 recites a molar ratio of a range from 0.7:1 to 1.8:1. And claim 37 recites a molar ratio of about 1:1. Galleguillos *et al.* describes a polymer or copolymer formed by an anionic component to cationic component in a very broad range of **2:1 to 1:450**, which does not overlap with any of the claimed ranges. Furthermore, Galleguillos *et al.* specifically teaches away from claimed range by indicating that a large excess of cationic

monomers over anionic monomers should be used. *See, e.g.*, Col. 12, lines 45-59. The specification explains:

A preferred ratio of cationic monomers to anionic monomers is from about 2 to about 16, with the ratio of about 3 to 16 being further preferred. Selecting a ratio within this range has two advantages. First, it facilitates polymerization. The cationic and anionic monomers form inter and intra salt units which cause the copolymer to precipitate from the solvent in the form of a fine powder. This facilitates formation of the copolymer by precipitation polymerization. Second, the presence of anionic and cationic groups in the same polymeric molecule renders the copolymer compatible with cationic, anionic, and amphoteric surfactants typically used in cosmetic, household, cleaning, pharmaceutical, and other formulations.

See Col. 12, lines 47-59.

Here, the specification expressly provides that the preferred ratio of cationic monomers to anionic monomers is from about 2 to about 16 with the most preferred ratio from about 3 to about 16. It even teaches that this excess amount of cationic monomer imparts specific advantages. In fact, every example of Galleguillos *et al.* has the molar amount of cationic compound far exceeding the molar amount of anionic compound, which is far outside the range of the instant claims. The data from the examples is summarized in the following table.

Example	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Anionic Component (MAA)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cationic Component (MDAPMA)	3.1	6.43	6.43	8.19	11.27	6.43	6.43	6.42	6.42	6.42	6.43	6.43	7.77	6.43
Ratio	1:3	1:6	1:6	1:8	1:11	1:6	1:6	1:6	1:6	1:6	1:6	1:6	1:6	1:6

Furthermore, Galleguillos *et al.* does not account for the elements of claims 36-47. As mentioned above, claims 36-37 recite specific ratios of component a) to component b), which Galleguillos *et al.* explicitly teaches away from.

Claim 38 further includes at least one monomer d) in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Galleguillos *et al.* Although individual monomers corresponding to monomer d) of the instant claims can be found in the

generic disclosure of Galleguillos *et al.*, Galleguillos *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 39 further includes a component e) at least one polyether acrylate in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Galleguillos *et al.* Galleguillos *et al.* does not appear to describe or exemplify any polyether acrylates. Furthermore, Galleguillos *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 40 includes a component g) selected from g1) polyether-containing compounds, g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol, and g3) cellulose, starch and derivatives thereof. None of these recitations have been addressed by the rejection and are not obvious in view of Galleguillos *et al.* Furthermore, Galleguillos *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claims 41-44 are directed to specific anionic components a) and claims 45-46 are directed to specific cationic components b). As explained above with respect to claim 30-31, Galleguillos *et al.* describes many anionic and cationic components but teaches away from the claimed ratio of anionic component a) to cationic component b).

Claim 47 further provides for a crosslinking compound f) with at least two alpha, beta-ethylenically unsaturated double bonds per molecule. Although individual compounds corresponding to crosslinking compound f) of the instant claims can be found in the generic disclosure of Galleguillos *et al.*, Galleguillos *et al.* does not describe its required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

**Blankenburg et al.**

Blankenburg *et al.* does not require that (1) an anionic component and cationic component be used together, (2) it does not specify a particular ratio of anionic component to cationic component, and (3) does not require the inclusion of a specific amide-group-containing compound.

Blankenburg *et al.* describes polymers having polysiloxane groups, which are special graft polymers obtained by polymerization of monomers selected from a large group of diverse ethylenically unsaturated monomers in the presence of a polyether polysiloxane (which is not ethylenically unsaturated). Blankenburg *et al.* does not specify or even suggest any polymers obtained from **both** cationic and anionic monomers.

Furthermore, Blankenburg *et al.* does not describe or suggest a claimed molar ratio of a) anionic component to b) cationic component from 0.5:1 to less than 2:1. Blankenburg *et al.* does not specify any ratio of anionic component to cationic component (or even suggest any polymers obtained from **both** cationic and anionic monomers).

Finally, Blankenburg *et al.* does not require the inclusion of a amide-group containing compound. The instant claims include an amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof. The disclosure of Blankenburg *et al.* includes some of the claimed amide-group containing compounds but does recognize a specific need to include them or require they be part of the described compositions.

Blankenburg *et al.* additionally does not account for the elements of claims 36-47. As mentioned above, claims 36-37 recite specific ratios of component a) to component b), which Blankenburg *et al.* does not recognize.

Claim 38 further includes at least one monomer d) in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Blankenburg *et al.* Although individual monomers corresponding to monomer d) of the instant claims can be found in the

generic disclosure of Blankenburg *et al.*, Blankenburg *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 39 further includes a component e) at least one polyether acrylate in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Blankenburg *et al.* Blankenburg *et al.* does not appear to describe or exemplify any polyether acrylates. Furthermore, Blankenburg *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 40 includes a component g) selected from g1) polyether-containing compounds, g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol, and g3) cellulose, starch and derivatives thereof. None of these recitations have been addressed by the rejection and are not obvious in view of Blankenburg *et al.* Furthermore, Blankenburg *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claims 41-44 are directed to specific anionic components a) and claims 45-46 are directed to specific cationic components b). As explained above with respect to claim 30-31, Blankenburg *et al.* does not specify or even suggest any polymers obtained from **both** cationic and anionic monomers.

Claim 47 further provides for a crosslinking compound f) with at least two alpha, beta-ethylenically unsaturated double bonds per molecule. Although individual compounds corresponding to crosslinking compound f) of the instant claims can be found in the generic disclosure of Blankenburg *et al.*, Blankenburg *et al.* does not describe its required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

**Morschhäuser et al.**

Like Blankenburg *et al.* discussed above, Morschhäuser *et al.* does not (1) require that an anionic component and cationic component be employed together, (2) it does not specify any ratio of a) anionic component to b) cationic component, and (3) does not suggest the inclusion of an amide-group containing component.

Morschhäuser *et al.* refers to polymers prepared by free-radical copolymerization of (a) one or more macromonomers containing an end-group capable of polymerization, a hydrophilic moiety based on polyalkylene oxides, and a hydrophobic moiety comprising hydrogen or a (C<sub>1</sub>-C<sub>30</sub>)-hydrocarbon radical, and (b) one or more olefinically unsaturated comonomers containing oxygen, nitrogen, sulfur, phosphorus, chlorine and/or fluorine. Morschhäuser *et al.* does not specify mixtures of cationic and anionic monomers together.

Furthermore, Morschhäuser *et al.* does not describe or suggest a claimed molar ratio of a) anionic component to b) cationic component from 0.5:1 to less than 2:1. Morschhäuser *et al.* does not specify any ratio of anionic component to cationic component (or even suggest any polymers obtained from *both* cationic and anionic monomers).

Finally, Morschhäuser *et al.* does not require the inclusion of a amide-group containing compound. The instant claims include an amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof. The disclosure of Morschhäuser *et al.* includes some of the claimed amide-group containing compounds but does recognize a specific need to include them or require they be part of the described compositions.

Morschhäuser *et al.* additionally does not account for the elements of claims 36-47 for the reasons As mentioned above, claims 36-37 recite specific ratios of component a) to component b), which Blankenburg *et al.* does not recognize.

Claim 38 further includes at least one monomer d) in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Morschhäuser *et al.* Although

individual monomers corresponding to monomer d) of the instant claims can be found in the generic disclosure of Morschhäuser *et al.*, Morschhäuser *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 39 further includes a component e) at least one polyether acrylate in copolymerized form, which has not been addressed by the rejection and is not obvious in view of Morschhäuser *et al.* Morschhäuser *et al.* does not appear to describe or exemplify any polyether acrylates. Furthermore, Morschhäuser *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claim 40 includes a component g) selected from g1) polyether-containing compounds, g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol, and g3) cellulose, starch and derivatives thereof. None of these recitations have been addressed by the rejection and are not obvious in view of Morschhäuser *et al.* Furthermore, Morschhäuser *et al.* does not describe their required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Claims 41-44 are directed to specific anionic components a) and claims 45-46 are directed to specific cationic components b). As explained above with respect to claim 30-31, Morschhäuser *et al.* does not specify or even suggest any polymers obtained from **both** cationic and anionic monomers.

Claim 47 further provides for a crosslinking compound f) with at least two alpha, beta-ethylenically unsaturated double bonds per molecule. Although individual compounds corresponding to crosslinking compound f) of the instant claims can be found in the generic disclosure of Morschhäuser *et al.*, Morschhäuser *et al.* does not describe its required inclusion with a composition having an anionic and cationic component together with a specific amide-group-containing compound.

Here, the examiner merely picks and chooses specific monomers that fall within the scope of the instant claims from a laundry list of all ethylenically unsaturated monomers and lumps them together to re-create the claimed invention. It is improper to reconstruct claims in piecemeal fashion by picking and choosing from the prior art using applicants' disclosure as a blueprint. *In re Kamm*, 452 F.2d 1052, 1056-57 (CCPA 1972). "In determining obviousness, therefore, the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole." *Texas Instruments Inc. v United States Int'l Trade Comm'n*, 819 F.2d 1100, 1108 (Fed.Cir.1988). To guard against falling prey to this type of hindsight, the Supreme Court recently explained that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The examiner has identified four references wherein the monomers of the instant claims can be found in generic form but has failed to set forth any articulated reasoning why one of ordinary skill in the art would pick and choose the specific monomers claimed by applicants and combine them in the claimed ratio when the art teaches away from the claimed ratio.

Where a reference teaches away from and discourages a person skilled in the art from doing what is claimed, the reference established "the very antithesis of obviousness." *In re Buehler* 185 USPQ 781 (CCPA 1975). Galleguillos *et al.*, the only reference that specifically describes using an anionic component together with a cationic component explicitly teaches away from using them in the ratios claimed by applicants. Unlike the instant claims where the amount of anionic component is similar to the amount of cationic component, Galleguillos *et al.* describes a range that does not overlap with the claimed range and specifically encourages using a large excess of cationic component. Galleguillos *et al.* explains that the preferred ratio of cationic monomers to anionic monomers is from about 3 to about 16, and specifically teaches that this excess amount of cationic monomer imparts specific advantages (thereby teaching away from the lower ranges claimed by applicants). Finally, every example of Galleguillos *et al.* has the molar amount of cationic compound far exceeding the molar amount of anionic compound (as much as 11-fold more cationic component). A prior art reference that teaches or suggests a preferred embodiment different from the claimed subject matter weighs against a determination

of obviousness. *In re Baird*, 16 F.3d 380, 382-83, (Fed. Cir. 1994); See also MPEP 2144.08(II)(A)(4).

Contrary to the teachings of Galleguillos *et al.*, applicants discovered that the claimed combinations in the claimed ranges impart a myriad of beneficial properties to cosmetic and pharmaceutical compositions. For instance, the claimed polymers form tack-free smooth films, have good setting action, are suitable in the preparation of products in the form of gels, and are compatible with a large number of different polyelectrolytes. See, e.g., the specification on page 3, lines 23-35. The many examples presented in the specification demonstrate the claimed polymers' use, for instance, in the manufacture of conditioner shampoos (examples 80-130), hair gels with an anionic thickeners (examples 181-230), hair gels with further setting polymers and thickeners (examples 231-280), anionic self-thickening hair gels (examples 281-330), and skin cosmetics (examples 331-380). The host of beneficial properties is especially surprising considering that Galleguillos *et al.* suggests that a much different ratio (than the claimed ratio) of cationic/anionic compounds achieves optimum results.

Finally, the only way to arrive at the claimed invention from the cited references is to work backwards from the inventors' disclosure and proceed in direct contradiction to the teachings of Galleguillos *et al.* One must specifically select (1) an anionic compound from a laundry list of compounds, (2) a cationic compound from a laundry list of compounds, and (3) a specific amide-group-containing compound from a laundry list of compounds. Then, one must determine to use the anionic component and the cationic component within the claimed ratios even though Galleguillos *et al.* teaches away from the claimed ratios. The Supreme Court has been clear that an obviousness rejection must provide "some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1741 (2007). It must "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does," *Id.* And, the examiner must make "explicit" this rationale of "the apparent reason to combine the known elements in the fashion claimed," including a detailed explanation of "the effects of demands known to the design community or present in the

marketplace" and "the background knowledge possessed by a person having ordinary skill in the art." *Id.* Anything less than such an explicit analysis may not be sufficient to support a *prima facie* case of obviousness. Here, the examiner has merely picked and chosen specific monomers that fall within the scope of the instant claims from laundry lists of all ethylenically unsaturated monomers and lumped them together to re-create the claimed invention in contradiction to the teachings that a large excess of cationic component to anionic component should be employed to achieve optimum results.

### VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

The fees required under § 1.17(a) and § 41.20(b)(2) for a two-month extension of time are submitted herewith. Applicants believe no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13111-00023-US from which the undersigned is authorized to draw.

Dated: September 1, 2009

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**APPENDIX A – CLAIMS ON APPEAL****Claims Involved in the Appeal of Application Serial No. 10/541,157**

30. An amphotropic copolymer obtainable by free-radical copolymerization of
- a) at least one compound with a free-radically polymerizable,  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one anionogenic and/or anionic group per molecule,
  - b) at least one compound with a free-radically polymerizable,  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one cationogenic and/or cationic group per molecule,
  - c) at least one  $\alpha,\beta$ -ethylenically unsaturated amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof,

where the quantitative molar ratio of compounds a) to compounds b) is from 0.5:1 to less than 2:1.

31. A polyelectrolyte complex comprising at least one amphotropic copolymer, as defined in claim 30, and at least one further polyelectrolyte different therefrom.
36. The amphotropic copolymer as claimed in claim 30, where the quantitative molar ratio of compounds a) to compounds b) is in a range from 0.7:1 to 1.8:1.
37. The composition as claimed in claim 30, where at least some of the compounds a) and b) are used in the form of a monomer composition, where the molar ratio of anionogenic groups of component a) to cationogenic groups of component b) is about 1:1.

38. The composition as claimed in claim 30, which additionally comprises, in copolymerized form, at least one further monomer d) selected from the group consisting of esters of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with C<sub>1</sub>-C<sub>30</sub>-alkanols and C<sub>1</sub>-C<sub>30</sub>-alkanediols, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with C<sub>2</sub>-C<sub>30</sub>-aminoalcohols which have a primary or secondary amino group, N-alkyl- and N,N-dialkylamides of  $\alpha,\beta$ -ethylenically unsaturated monocarboxylic acids which, in addition to the carbonyl carbon atom of the amide group, have more than 8 further carbon atoms, esters of vinyl alcohol and allyl alcohol with C<sub>1</sub>-C<sub>30</sub>-monocarboxylic acids, vinyl ethers, vinyl aromatics, vinyl halides, vinylidene halides, C<sub>1</sub>-C<sub>8</sub>-monoolefins, nonaromatic hydrocarbons with at least two conjugated double bonds, siloxane macromers and mixtures thereof.

39. The composition as claimed in claim 30, which additionally comprises, as component e), at least one polyether acrylate in copolymerized form.

40. The composition as claimed in claim 30, which is obtainable by free-radical copolymerization in the presence of a component g) which is selected from the group consisting of

g1) polyether-containing compounds,

g2) polymers which have at least 50% by weight of repeat units which are derived from vinyl alcohol,

g3) cellulose, starch and derivatives thereof,

and mixtures thereof.

41. The composition as claimed in claim 30, where component a) is selected from the group consisting of monoethylenically unsaturated carboxylic acids, sulfonic acids, phosphonic acids and mixtures thereof.

42. The composition as claimed in claim 30, where component a) is selected from the group consisting of acrylic acid, methacrylic acid, ethacrylic acid,  $\alpha$ -chloroacrylic acid, crotonic acid, maleic acid, maleic anhydride, fumaric acid, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, vinylsulfonic acid, allylsulfonic acid, sulfoethyl acrylate, sulfoethyl methacrylate, sulfopropyl acrylate, sulfopropyl methacrylate, 2-hydroxy-3-acryloxy-propylsulfonic acid, 2-hydroxy-3-methacryloxypropylsulfonic acid, styrenesulfonic acid, 2-acrylamido-2-methylpropanesulfonic acid, vinyl-phosphonic acid and allylphosphonic acid and mixtures thereof.

43. A composition as claimed in claim 42, where component a) is selected from the group consisting of acrylic acid, methacrylic acid and mixtures which comprise acrylic acid and/or methacrylic acid.

44. A composition as claimed in claim 42, where component a) is selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid and mixtures which comprise this.

45. The composition as claimed in claim 30, where component b) is selected from the group consisting of esters of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with amino alcohols which may be mono- or dialkylated on the amine nitrogen, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with diamines which have at least one primary or secondary amino group, N,N-diallylamine, N,N-diallyl-N-alkylamines and derivatives thereof, vinyl- and allyl-substituted nitrogen heterocycles, vinyl- and allyl-substituted heteroaromatic compounds and mixtures thereof.

46. A composition as claimed in claim 45, where component b) is selected from the group consisting of N,N-dimethylaminoethyl (meth)acrylate, N,N-dimethylaminopropyl (meth)-acrylate, vinylimidazole, N-[3-(dimethylamino)propyl](meth)acrylamide, N-(tert-butyl)aminoethyl(meth)acrylate, N,N-diallylamine, N,N-diallyl-N-methylamine and mixtures thereof.

47. The composition as claimed in claim 30, which additionally comprises, in copolymerized form, at least one free-radically polymerizable crosslinking compound f) with at least two  $\alpha,\beta$ -ethylenically unsaturated double bonds per molecule.

**APPENDIX B - EVIDENCE**

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

**APPENDIX C – RELATED PROCEEDINGS**

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.